

Minutes from the FY03 STAR Operations Critique meeting

Meeting date: July 16, 2003.

Reported by: B. Christie

Agenda for meeting:

9:00 - 9:15 Welcome and Statement of the Purpose of the Meeting (T. Hallman and/or B. Christie)

Critique of Detector Operations (W. Christie, Chair)

9:15 - 9:40 Discussion of Run Control Ops (J. Landgraf)

- 1) critique by sub-system manager
- 2) action plan/possible changes
- 3) discussion by all (N.B. Same set of topics apply to most sub systems)

9:40 - 10:00 Discussion of DAQ Ops (T. Ljubicic)

10:00 - 10:20 Discussion of Trig Ops (H. Crawford)

10:20 - 10:35 Break

10:35 - 10:50 Discussion of Level III Ops (T. Kellogger)

10:50 - 11:05 Disc. of Slow Contr. Ops (Mailed in comments by M.C)

11:05 - 11:20 Discussion of On-line QA (S. Panitkin)

11:20 - 12:00 General Discussion of Run Control, DAQ, Trig, Online, level III, slow controls (critique of experience; problems, successes, needed improvements) T. Ljubicic, moderator

12:00 - 1:00 Lunch

1:00 - 1:15 Discussion of TPC Ops (A. Lebedev)

- 1) -> 3.) (I.e. same as morning presentations)

1:15 - 1:20 Discussion of Magnet Ops (R. Longacre or designee)

1:20 - 1:35 Discussion of EEMC Ops (J. Sowinski)

1:35 - 1:50 Discussion of SVT Ops (D. Lynn)

1:50 - 2:05 Discussion of FTPC Ops (A. Lebedev)

2:05 - 2:20 Discussion of TOFp/TOFr/VPD Ops (B. Llope)

2:20 - 2:35 Discussion of FPD/BBC Ops (L. Bland)

2:35 - 2:50 Discussion of EMC Ops (TBD)

2:50 - 2:55 Discussion of PMD Ops (S. Chattopdhyay)

2:55 - 3:05 Break

3:05 - 3:20 Discussion of Fast Offline QA (G.V. Buren)

3:20 -- 3:25 Interlocks & ES&H perspectives (W. Christie)

3:25 - 3:45 Training for Operation of Detector (T. Hallman) Involvement of STAR Collaborators in running & certification process i) critique of experience from FY03 Physics run

- ii) action plan/possible changes
- iii.) Discussion by all

3:45 - 4:05 General RHIC Ops (as relevant to STAR Ops) (B. Christie)

- i) critique of experience during run and report from RHIC Retreat
- ii) action plan/possible changes
- iii.) Discussion by all

4:05 - 5:30 Round Table Discussion

* Capturing of Action Items/Action plan for systems/topics

* Discussion of suggestions sent in by collaborators not able to attend mtg

* Operating the STAR Detector: staffing of shifts, period coordinator experience, Detector Operator exp., Shift leader exp., Shift crew exp., ease of detector operation, shift plan communications, etc: problems, plus's, needed improvements (B. Christie moderator)

5:30 Adjourn

Minutes from Presentations:

1.) Goals of the Critique mtg.- B.Christie and T. Hallman Use experience gained in the previous Operation of the STAR Detector to continually improve all aspects of operating the STAR detector and accumulating Physics data.

•Example of items to be considered:

- Commissioning the sub systems
- Shift staffing & training
- Shift coordination (e.g. meetings, run plans, etc.)
- Run Control (Starting and stopping runs, selecting triggers, etc.)
- Quality Assurance (on and offline)
- Shift Sign-up
- Documentation (Procedures, etc.)
- Procurement & Supplies
- Technical support
- Anything else related to operating, maintaining, installations, commissioning, etc.

2.) Discussion of Run Control Ops – J. Landgraf

New features in FY03 Run:

- Multiple simultaneous triggers- Effective use of pre-scales
- Fast/Slow detector events
- “Automated” pre-scales

Overall the Run Control System ran well.

Web Pages:

- Trigger Defn.
- Trigger change history
- Scaler info.

Issues:

- Web pages were Slow:
 - o Why?: lots of info
 - o Fix?: Query optimization and caching.

Summary on Web pages: Some significant time needs to be spent.

Issues:

- Pre-scales: Should implement so that the “base rate (e.g. BBC coin. Rate)” is automatically picked up at start of run.
- GUI: There are some extra fields in the GUI which could be removed. The GUI will be “cleaned up”.

- Adding and removing triggers from the mix/run: This process was problematic. Will work on making it more straight forward.
- Dictionary Set-up: Will remove cyclic dependency.
- Limitations on number of different triggers in a run: Some of this constraint was due to the GUI. These will be removed. The other constraint was due to the number of bits in the Trigger “Physics Word (pw)”, and how they are allocated. The number of bits allocated to the pw can be increased at the expense of removing bits assigned for detector “live” signals. This can be done by bundling sets of detectors together based on their “speeds”, and using a common live bit for all the sub systems in a given speed category.
- * Time needed at Level one (L1) to “rescale”: In current implementation the time it takes to rescale the triggers increases quickly as one increases the number of simultaneous triggers (e.g. 9 trgs takes ~10 us, 15 trgs take ~ 270 us). This can/will be optimized to dramatically reduce this rescale time (e.g. 15 trgs will take ~1.2 us).
- * Some “run” parameters should be in the Trigger configuration (e.g. # of tokens).
- Threshold values should be associated with triggers, not with configuration files (implies a consistency check will be needed).

Summary of GUI changes for FY04:

- Pick up base trigger rate
- Clean up GUI display
- (trg) Modify configuration Algorithm and rescaling algorithm in L1
- (trg) Reconfigure TCU/TCD to have 4 detector live, and 12 physics word bits.

Other issues:

- Want historical graphs of selected info. from Tonko’s monitoring screens
- Web based application for the monitoring screen (big letters?)
- Data transfers/Disk Usage: Need a good “at a glance” application for this. This could be important next year because we’ll be running with parallel Event Builders.

3.) Discussion of DAQ Ops - (T. Ljubicic)

New Detectors in FY03: EEMC towers, PMD, SSD, EEMC SMD, new FPD readout, TOFr (extended).

Retired detectors in FY03: RICH

DAQ100: Was tested and running for L3. Worked.

Issues:

- No DAQ manual
- Local buffer disks filled twice due to HPSS failures. Need for better monitoring next year, as well as more local buffer space.
- Late L2 accepts caused some problems.

In general the DAQ system ran well during the FY03 run.

Plans for next year:

- Massive Event Builder upgrade
 - o Faster

- More robust
 - 8 TB of disk cache
- Plan to run with DAQ100, needs QA buy in from collaboration.
- Better control of Deadtime
- Better control of gain/bad FEES. New feature for pulser runs to quantify and notify the operator of bad channels.
- Proposal not to ship all events to L3

Discussion:

Would like to select events sent to L3 based on trigger word: Will implement.

FTPC would like to have DAQ based Cluster finder implemented.

Need to work on getting full set (4) of SSD Receiver boards and spares ready to go.

Need to program and bring online the EEMC Rec. Boards.

4.) Discussion of Trigger Ops – H. Crawford

Summary of Run3:

- New BBC electronics, including TACs
- New FPD electronics
 - 5/8ths installed and working
- BEMC, ½ installed and operational
- EEMC, test
- Scalers, 12 boards installed
- Trigger Control Units (TCU)
 - New boards for 16 detectors installed
- Level 0, new trigger for J/Psi, Jets
- Level 2
 - Aborts tested
 - J/Psi code tested, path for BEMC raw -> L2
- New Trigger Clock Distribution boards (TCD)

Plans for Run 4

- Central Trigger Barrel (CTB): Replace digitizers (CDB)
- Multi Wire Chamber (MWC) trigger: Decommission
- TCU: New code for HALT and pre/fof protection
- FPD: Full detector electronics
- BEMC: ¾ installed
- EEMC: All trigger electronics installed?
- Scalers: New readout scheme (via Myrinet) for speed
- Network: Rework software for speed
- L1: Split CPU functions for speed
- L2: Rewrite for speed and separated processes, new CPU?

Personnel Changes:

Z. Milosevich has left group

M. Kopytine has joined group

C. Perkins will be resident at BNL for one year

Trigger Troubles:

Tier 1 proliferation – Do we need dead detector component philosophy?

- Hank will write up a proposal on this and circulate for comment.

Barrel SMD needs work to be able to operate with L2

TCU – Need HALT protection

L2 – Aborts need robustification, processes need separation

Scalers – SLOW readout

Schedule:

Trigger will be ready about mid-September

5.) Level 3 Discussion – T. Kellogger

A new display was available for Run 3 that included a visualization of the Barrel EMC Tower data. Algorithms using the BEMC data were written.

Generally, the L3 system was stable during the run.

A New L3 Bug Tracking System was implemented during Run3. It has a Web interface:

www.star.bnl.gov/rt2/

There is an e-mail address for L3 bugs, issues-l3@www.star.bnl.gov

L3 Problems in FY03

Memory consumption on SL3s:

- New linux system and EMC integration required more memory. No swap space due to the diskless CPU setup

Resolved

Increased minimum memory to 128 MB (was 64 MB)

EMC Energy Calibration:

ADC to energy calibration was not available at start of run

Partially resolved

Energy calibration tables used in L3 framework. Not yet used in event display.

Data Transfer between L3EVP and Event Display:

Hickups in NFS, slow event loading

Resolved

Raw TCP data transfer

Hardware failures:

Gl02: occasional floating point exceptions, slowing down DAQ, seems to be hardware problem.

Sl22: MYRINET problems, not in run

Not solved so far:

Replacement for gl02 (1 new PC)

Sl22 repair/replacement of MYRINET card

Plans for FY04 Run:

Plan to run in “express stream mode” (assuming DAQ 100)

The idea is that “rare” L3 selected events will be written (an additional copy of event) to a different data stream for preferred offline reconstruction (e.g. Upsilon events)

Expert Coverage for the FY04 run:

Tom, Thorsten, and Soeren will be around for Run4. Manpower after next year’s run is not clear.

Discussion points: H. Crawford points out that he’d like to have an L3 utility that does a continuous calibration of the CTB.

6.) Slow Controls Discussion – mailed in by M. Cherney

Three items planned for the next year:

1. Integration of new subsystems / detector upgrades of existing subsystems.
2. Movement to new version of EPICS. (We are currently 2 versions behind. The plan is to have both new and old versions of EPICS available for next years run so we can go back if we encounter any problems during runtime.)
3. Improved integration with experiment controls. (More automatic configuration. Again we plan to retain existing software so we can switch back in case we encounter any problems during runtime.)

Three other things worth noting:

1. Bill Waggoner will finish his first year with STAR in late summer and should be ready to take on more controls responsibilities.
2. We plan to return with a full time presence at BNL starting in October. (Expect Bill Waggoner, Tom McShane, and M. Cherney, all to be present for most of the run. This should give a good level of backup coverage.) We plan to do fair amount of the upgrade work at Creighton before that time.
3. We have done a detailed study of the PVSS system as a replacement for EPICS when we move onto the next generation of STAR. (This is the system adopted by the LHC experiments and we are using it for control code we are writing for ALICE. I would be happy to show the system to anyone who is interested. It is very similar to EPICS. Like EPICS, its actual use reveals more problems than does the documentation.) The conclusion was we would be no better off migrating to a new system.

Discussion points: Would it be possible to have separate CANBUS chain(s) for sub systems (e.g. Trigger)?

7.) Discussion of Online QA Plots – S. Panitkin

Plans:

Saving of histograms for a run should be automatic.

System will be changed so that it is not necessary to wait for the writing of the histograms before subsequent runs can be started.

Improve documentation for saving “canvas” from online plots to Run Log.

Have a reorganization of how the QA plots are presented:

- A small set of plots for the shift QA
- A set of plots for the sub system experts

A set of Reference plots should be somehow saved (i.e. printed or saved electronically) each week. A feature should be added to Online Plot package to facilitate the saving of these Reference plots, as well as to pull them up easily for comparison to current QA plots.

Lunch

8.) Discussion of TPC Operation – A. Lebedev (for B. Stringfellow, who joined via phone)

TPC OPERATIONS 2003

TPC ran well for 2003 run:

- New, improved gas system ran for 5 months with no unplanned shutdowns or alarms.
- New bulk Argon tank => no dewars and saved money
- Average of 2 –3 RDO’s were dead (out of 144). Continued to lose FEE’s at the rate of 1 to 2 per week
- Gain chamber preamp blew ~ half way through the run.
- One anode section (20-5) did not hold HV (equivalent to 1 RDO).
- West laser was off for 2 month due to failed Q-switch.
- Uncontrolled beam dumps caused anode AND cathode trips – no permanent damage seen (yet).
- Again had a field cage short after cone insertion. Able to fix the problem (luckily) without removing the cone.
- Operations by detector operators seemed to go smoothly (few phone calls after midnight)

PLANS for 2004 RUN

- RDO and FEE replacement in October (Danny, Ken, Blair, Fabrice...)
- Gain chamber preamp replaced (AL,BCS)
- Replace the TPC water manifold temperature readout system (currently running on an old PC). New system being designed and built by P. Kravtsov (possible visa problems?)
- Improve and automate the bad pad and RDO accounting – will need daily checks for DAQ100 (Blair, Tonko, Dennis)
- NO changes expected for TPC or global interlocks, gas system, slow controls or operations.

9.) Discussion of Magnet Operations – B. Christie (R. Longacre on vacation)

Magnet ran quite stably for the bulk of Run 3. Something that we'll be keeping an eye on are discussions by C-AD that they control the Experimental magnets. At this year's RHIC Retreat it was pointed out by the C-AD Accelerator Physics group that the STAR Solenoid should be include in the simulation model of the Collider. This should reduce the C-AD effort necessary when we choose to change the polarity or magnitude of the STAR B field.

10.) Discussion of Endcap EMC Operation – J. Sowinski

Run 3 Experience:

- 1/3 of towers operational (240 out of 720)
- System operated by experts for Run 3
- Operational Issues:
 - o Power Supply trips – resolved
 - o Data errors due to clock synch loss – resolved
 - o 1% data error rate on DAQ end – Tonko?
 - o Jet pedestal width – resolved in firmware
 - o Jet Trigger ghost pedestal and $n \times 256$ – resolve during shutdown
 - o EEMC crate power supply Slow Controls is at the end of a long CANBUS chain, after BEMC, with FPD following EEMC.

Plans for Run 4:

Towers:

- All installed and instrumented – 720
- Operational System
 - o Diagnostic histograms needed
 - o Slow Control alarms needed – EPICS
 - o L0 triggers as last year (High Tower, Jet) over full 360 degrees.

SMD, pre/post-shower, MAPMTs

- Fully installed, up to half instrumented
- Functionally similar to towers
 - o Same HV system as towers
 - o Similar data system – Second TDC (ESMD)
 - o Higher channel count - ~4600 instrumented
- Turn over operations to Shift crew mid-run, after commissioning phase.

Discussion points:

Would be useful to add more CANBUS chains. A possible way to do this is to use the commercial PC interface that the PMD group uses.

Is worth investigating getting the VHDL code in the electronics changed so that “floating” channels sent to trigger show up as zero, rather than showing up as a high value.

11.) Discussion of SVT Operations – D. Lynn

SVT ran fairly well

Very few late night calls (~10 during full running period)

Sources of Downtime:

- RDO failures:

To continue running when an RDO has failed, need to bypass interlock. Requires ~ 20 minute access. Finished run with three RDOs bypassed.

- Burn-in required after detector has not had HV power for a few days. Requires 1-3 days burn-in at lower than full High Voltage (nothing can be done to change this)

- Fuses blew in one low voltage supplies (happened once at end of run. Normally need a couple hours access to diagnose and replace; but just bypassed associated RDO since it was at end of run)

- Water system accidentally turned off by people working on top magnet.

Sources of phone calls to detector expert:

- All of the previous and...

- Slow control vme processor hangs when too many EPICs windows left open on svtmonitor. (left large note above svt computer about this but problem still occasionally occurs)

Potentially damaging voltages to SVT sometimes enable during access when some groups are doing something with the TCD crate.

- SVT requires RDOs on all times, including magnet ramps, to avoid problems with some ADCS.

- The EXCEPTION is that RDOs should be turned off during access to avoid this voltage-enable problem.

I found no way to convey this information to the shift crews that prevented this from recurring.

E.G. Informing shift crew, large written notes above SVT slow controls workstation, additions to Svt Operations Manual, etc., failed.

A couple of comments:

- Difficult to pass on changes in SVT operations to shift crews. Information passed to shift crew leaders vanish into a void. Section in “SVT Operations Handbook” binder called “Temporary Changes” generally seems not be read.

- Most detector operators do not seem to be too familiar with SVT Operations Handbook (although a few operators were very good). Makes it difficult to diagnose problems over the phone (although telling them to shut it off until morning has developed into the preferred solution) as well as making it difficult to pass along information to subsequent shift crews.

Planned changes:

- No major changes to operations planned, except would like to discuss how to proceed to solve above problems.

In discussion the idea was raised that perhaps we need to compile an “IR Access Checklist” so that we can increase the probability that the SVT RDOs are powered off prior to IR accesses.

11.) Discussion of FTPC Operations – A. Lebedev (for V. Eckardt)

FTPC OPERATIONS 2003

FTPC ran well for 2003 run:

- Automated gas switch installed- no need for constant watch for CO2 supply.
- New bulk Argon tank => no dewars and saved money
- One RDO's was dead (out of 20).
- Water cooling system failed at the mid of run, repaired.
- East cathode HV had failed SC.
- Slow Control for east FTPC -some glitch in Data Base.
- Laser runs- good enough for west FTPC, need improvement for east FTPC.
- Operations by detector operators seemed to go smoothly (I got ~5 phone calls through last run).

PLANS for 2004 RUN

- RDO and FEE repair and replacement in September (Danny, Ken, Frank...). Setup at assembly building. Use of existing systems on platform and control room.
- Laser system for east FTPC (AL). Failed motor replaced, more targets to install for better laser beam monitor.
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12.) Discussion of TOFp, pVPD, and TOFr Operations – B. Llope (via phone)

- Significant data sets taken for both TOFp and TOFr in FY03 run
- Significant data sets in TOFr with both pure Freon, and 95% Freon + 5% Isobutane.
- TOF systems fully under STAR Slow Controls for FY03 run
- Various alarms during the FY03 run
 - o One gas alarm when Freon regulator got stuck
 - o A number of HV trips in last two weeks of run. Traced to bad HV pod.
 - o Effected by some L2 latency problems during run
 - o Some problems related to trigger TCD apparently associated with people working in/around TCD rack.

Plans for Run 4:

- New pVPD base plate to eliminate PMD interference
- Modified TOFr (TOFr') being assembled for Run 4
 - o - new (simpler) tray body design
 - o - replacement of ~6 MRPC modules, rest are reused
 - o - F/Tplate+FEE -> prototypeTFEE+TTST
- Discussion of plan to move TOFp tray. Note that Run 4 is last run planned for TOFp
- Discussion of new HV path for pVPD to allow for higher gain

- Additional refinements to interfaces and procedures

13.) Discussion of FPD and BBC Operations – L. Bland

Changes Implemented for last run:

- Completed construction of large hexagonal tiles
- Extended PMT readout of hexagonal pixels
- Implemented 48-channels of CDB/DSM for pulse-height readout
- Implemented 32-channels of CDB/DSM for timing readout (small hexagons only)
- Developed 6U VME Time-to Amplitude (TAC) converter (based on CAMAC design/components)
- Employed LeCroy 1440 HV System/interface to slow controls system
- Full integration of BBC into L0 trigger
 - o Small tiles – 32 channels of timing info., 32 channels of charge info.
 - o Large tiles – 16 channels of charge info.

BBC served many purposes, including:

- Minimum (or adjustable) bias trigger for pp and ion runs
- Course determination of collision vertex at L0
- Topo trigger for UPC program
- Luminosity monitor, calibrated via Van der Meer scans
- Spin – dependent lumi. Monitor
- Feedback to MCR on beam conditions
- Local polarimeter for tuning Spin rotator magnets

BBC performance issues/Action items

- Need additional u metal shielding around PMTs
- Recurrent alarms due to loss of gain
 - o Gain loss of older PMTs?
 - Will replace with Burle 83112
 - o Stability of LeCroy 1440?
- ADC saturation likely to be a concern for ion running
 - o Operate PMTs with reduced gain?
 - o Additional ADC channels for increased dynamic range?
- Fraction of cross section sampled by pp trigger
 - o Additional TAC channels for large tiles?

FPD Operations:

Run 3 Implementation:

- Full detector complement (i.e. Up, dn, N, S) on East side
- 50% of calorimeters on West side
- Pb-glass readout fully integrated with L0 trigger
- CAMAC readout of SMD

FPD Performance Issue/Action items

- Communications problems with LeCroy HV control, not operated by Slow Controls
 - o Fix problem to maximize integration/logging
- Not clear if water cooling of readout electronics is required

- Issue with cable connections to CAMAC readout of FPD SMD on South platform
 - o Install separate East/West CAMAC systems?
 - o Replace CAMAC by originally planned system?
- Complete construction of all calorimeter modules.

14.) Discussion of Barrel EMC Operations – T. Cormier (via phone)

Experience during FY03 run:

- Half of barrel (2400 towers and associated SMD) was operational for the FY03 run
- No Pre-shower capability for FY03 run
- 3 to 5% of the towers were non-operational for various portions of the last run. This large failure rate was due to a problem with the Cockroft-Walton bases. This problem has been diagnosed, and the remaining bases that haven't yet been modified will be prior to the next run.
- A conventional "High Tower" trigger was functional and in use for most of the last run.
- A Jet trigger was tried/commissioned, but it didn't perform well.
- Main performance issue during the past run was the high failure rate of the "VME-like" electronics crates for the BEMC.
 - o Some of these failure modes were observed at LBNL during testing, associated with fan failures. All the fans were replaced.
 - o Appear to be three distinct failure modes for these crates. The cause for these failures is not understood at this time.
 - Most crate failures seem to be those mounted on upper half of magnet.
 - Thought to perhaps be a temperature problem, but in crate measurement data don't support this idea.
 - Some thought that the cause could be radiation damage, but this doesn't appear likely.
 - The crates on the lower half of the magnet are stood off of the magnet further than those on the upper half. Perhaps the problem is due to the magnetic field in the crates.

Two ideas:

- Stand crates further off of the magnet
- Switch to 208 VAC power.

Jet Trigger:

- Primary issues are in electronics
- There were problems associated with the pedestals
- Plan is to swap in new EPROMs with algorithm changes more or less identical to those implemented during the last run for the EEMC.

Data Corruption:

- Few different types of corruption that occurred at non-negligible rates.
- Will study this further during testing prior to next run
- Will learn more during next run.

Plans for next Run:

- Plan to have 90 (out of total of 120) BEMC modules mechanically installed in STAR for next run
- Late Federal budget lead to late \$'s getting to LBNL.
 - o At this point it appears certain that 75 of the 90 modules will be instrumented with electronics and PMTs by the start of the next run.
 - o The remaining 15 modules may get instrumented during the run.
 - o The 75 instrumented modules are expected to have Pre-shower electronics in place.

In response to a question, it was pointed out that the issue concerning BSMD operations with L2 aborts was being worked on by B. Minor and the Texas group.

15.) Discussion of PMD Operations – S. Chattopdhyay

PMD system gathered some valuable engineering data during the last run
 The Low Voltages were controlled via a PC-CANUSB control window
 The HV was controlled via an EPICs window

All controls were remotely accessible via a Control Room PC

No changes are required in the near term for the gas system.

Online monitoring is available via the PMD Control Room PC, and a few

Histograms will be added to the STAR Online QA package.

For next year's run PMD will need to be included in Pedestal runs

Pre-Trigger:

- For the last run the PMD Pre-trigger required a special configuration of the BBC thresholds.
- For the next run a more general scheme will be implemented.

16.) Discussion of Fastoffline QA – G. Van Buren

Functionality of fast offline QA:

- Histograms produced in BFC
- (New) QA Browser to view histograms
- (New) QA Browser to view histograms
- QA shift report forms for reporting problems
- Archive of reports

Histogram production:

- No significant problems this year
- Hist. Now separated by trigger types
- Some new hists added

New QA Browser:

- Learned and improved as run progressed
- Dedicated person to maintain it (H. Ward)
- No longer having disk space problems

QA Browser To-Do List:

- Improve feedback to Shift Leaders
- Refinement of interface
- Further limits on the number of jobs displayed
- Further automation
 - o Cron jobs to ensure processes are running

- Error recovery for database interactions
- Marking of runs as good/bad/other in database (File Catalog)

QA Shift Report form:

- Streamlined for less “Grunge” work
- Had problems with some Web browsers
 - Issues promptly solved via dedicated maintainer (G. Van Buren)
- Mild misuse

Archived Reports:

- Accessible by date, run#, report# from RunLog Browser
- Summaries in Shift Report Hypernews

QA Successes:

- Found FTPC problems
- Helped with BBC timing problems
- Noticed large background in TPC during d-Au run
- Caught that runs marked as bad by Shift Leader were still going through production

QA Struggles/Issues:

- Preparedness of shift crew still iffy, though improved from previous runs
 - Some difficulties with finding/reading documentation
- One no-show for shift
- Problems reported by QA not always addressed

Action Plan:

- Reshape the documentation; make it more tutorial-oriented
- To-do's listed earlier
- Possible full automation of histogram and scaler-checking QA system

Discussion:

- Suggested that QA reports get E-mailed directly to the Period Coordinator
- Some discussion that, due to the large number of these automated QA reports which often contain essentially no information, that people have a tendency to stop looking at them. Perhaps somehow only send them if the QA reviewer enters some important comment.

Short Presentation and Discussion of Electronic Shift Log – G. Carcassi

- Installed from start of last run
- Some problems with data repeated from the Shift reports

Discussion:

Some people would like the ability to add entries from offsite/home.

- Not a technical problem, must deal with computer security issues.

Question about the ability to generate an index of the data in the Shift Log “After the Fact”

Question if we can somehow get cross links to the Collider Shift Log

- B. Christie will inquire about this and put appropriate C-AD person in contact with Gabrielle.

Suggestion to get “Real-Time” plots, and Scaler data into Shift Log Automatically.

17.) Discussion on ES&H and Interlocks – B. Christie

The STAR Global Interlock System (SGIS) was very stable in the FY03 Physics run.

- There was one substantial failure where it appears that the Allen Bradley Processor in the platform SGIS crate lost its running program code.

Action plan for next year's Operation: Put together a concise document for the Shift Leader describing the SGIS system.

- Include printouts of the various screens
- Include brief sections on what some of the more likely alarms are telling the Shift Leader, and suggestions on how to respond.
- Include a section detailing the authorization needed for various actions.

Technically:

- This is the first year where it appears that there aren't any new sub systems that need to be added into the SGIS system.
- To deal with possible future occurrences where the platform processor loses its code, the processor will be left in a mode such that the code gets reloaded automatically on a power cycle of the processor.

18.) Discussion of General RHIC Operations – B. Christie

Positive changes from previous year's runs:

- Scheduled Accesses:
 - o These made commissioning, debugging, installation, and maintaining STAR systems much more efficient. Though some C-AD management is hesitant to admit it, it also appeared to increase the reliability of the Collider operations.
- Weekly Scheduling meetings:
 - o This was also a success. For the most part these weekly schedules, discussed and agreed to on Monday afternoon, were held for the week. This was much more efficient, and aided STAR internal scheduling and planning. It also removed scheduling discussions/battles from the Wednesday RHIC Coordination/Progress meetings, making them more useful as well.
- More realistic Collider performance estimates prior to the run:
 - o While the estimates still proved to be overly optimistic, STAR and PHENIX expectations were much more closely matched

C-AD Plans for next year's run:

"Physics Development mode":

- What C-AD is proposing is that after the five week "Set-up" and "Ramp-up" phase for a given beam configuration that Luminosity development continue during the "Physics Running" 8:00 am to 4:00 pm Monday through Friday.

Concerns:

- Current Schedule calls for the "Physics Running" to start about December 22nd. Concern is that to effectively use the holiday period (I.e. time until about January 2nd) that we must have STAR commissioned, and at least a final min-bias trigger set-up before this time.

- QM04 in mid January will pull a number of people out of town. We'll need a careful plan for commissioning of the higher level and "rare" triggers to effectively make use of beam time in January.
- With "Physics Development mode" running, for STAR to get it's 45 hours per week of spinning tapes, the uptime for the collider and STAR will have to be much larger than we've seen in the past:
- $.45 \text{ hrs}/(168 \text{ hrs/wk} - 12 \text{ hrs(Beam Exp.)} - 8 \text{ hrs(Access)} - 40 \text{ hrs (Physics dev. mode)}) = 108 \text{ hrs}) \sim 42\%$

19.) Discussion on Training and Sign-up for Shift Crews – T. Hallman

Training, Shift QA, Shift Signup:

Training protocol nominal this year; heavy reliance on oral tradition during overlap period

- Level of impact on collaboration about right
- Documentation needs improvement
- Overlaps days need to be taken seriously
- No severe problems I am aware of, but...
- Efficiency in bringing up the detector can be improved

QA Board was appointed but not functioning during this period (Christie, Crawford, Wieman, Eckardt, Ljubicic, Whitten, Stringfellow, Lynn, Thomas, Bland)

- Requirements for Chair: resident at BNL, experienced, balanced, active
- Basic system viable; recommendations provided by all mentors
- Better execution of the plan needed next time

Shift Signup:

- Shift Sign-up Coordinator (Whitten) did a great job!
- Basic Functionality of web signup was good
- Basic Information on web seemed adequate
- Problem with database driven namelists
- Problem with people changing without notification
- Auto-accounting needs to be implemented

Discussion about Training and Shift Signup:

- It was suggested that Training shifts should not be scheduled until sometime later in the run to increase the probability that there is beam during the Training shifts.
- It was suggested that a method be devised that requires people to contact the Shift Coordinator before they can change the Shift list.

Various comments associated with Shift efficiency:

- The point was made that in order to accumulate the large data sets that the Collaboration is starting to discuss the efficiency of the Shift Crews to quickly get STAR online and taking Physics data will have to improve.
- It was suggested that data be accumulated on the time between when the Collider is finished tuning the beam, and when the first Physics data run is started.
- The point was made that due to the small shift load for STAR Collaborators most people only serve one week of shifts. This leads to a situation where we

are always running with “novices”. A suggestion that people are encouraged to sign up for two shift weeks per run.

- It was suggested that the composition of the Shift Crews be tuned a bit. In particular to have a Shift Crew consist of One Shift Leader, two Detector Operators, and one Shift Crew, in addition to any people signed up for Training Shifts. The utility of two Detector Operators was thought to be important due to the additional Sub Systems that it is envisioned will be handled by the Shift Crew towards the end of the next run (e.g. PMD, SSD, EEMC).
- There was a suggestion that some tuning of the Shift Schedule could take place to ensure that at least one of the Detector Operators on Shift had some recent experience, and could get the detector online quickly.

General Discussion points:

- Point was made that communications between the STAR MCR and the Collider MCR are important.
- There was some discussion of when the appropriate time would be to start Shift signups for the upcoming run. This topic was left for later consideration.

20.) Mailed in comments by the Collaboration:

- Use some STAR scalers (CTB, TOF) to decide when to bring up TPC to pedestal voltage after the beam is ramped rather than waiting for main control to call and say scraping is finished.
- Lots of people arrive on shift untrained. Require RTS and detector operators to serve an apprentice shift, with beam.
- The number of meetings is ok. They last longer than they need to
- Eliminate the Crew position and just have Leader, Detector, RTS, and apprentices.
- Document the QA required and have the Leader make sure he or someone on shift checks it.

END OF MEETING